

INNOVATION CONNECTION

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U.S. Department of Transportation
Federal Highway Administration

Sharing Success Stories from the
Turner-Fairbank Highway Research Center

November 2000

Truss with a T

Truss – An assemblage of members (as beams) forming a rigid framework.

Trust – Assured reliance on the character, ability, strength, or truth of someone or something.

Both these words apply to strength and relate to our research programs and to their vitality. But *trust* (with a T) – knowing that research contributes to the mission of the parent organization – is the most important key to building and maintaining a robust research program. That's according to the Transportation Research Board, which undertook a study authorized by the American Association of State Highway and Transportation Officials through the mechanism of the National Cooperative Highway Research Program. This study determined the key attributes that contribute to achieving a robust research program: (1) *Found it on trust*, (2) *Market boldly*, (3) *Root it in economics*, (4) *Make deals unabashedly*, (5) *Insist on accountability*, (6) *Embrace policy research*, and (7) *Empower the staff*.

In June RD&T hosted top research and technology managers from the agency in a discussion of the Seven Keys with the report authors, Tom Deen and Barbara Harder, and agreed on the need to produce high-quality, well-targeted products for which we must be vigorous advocates. Keep these seven keys in mind. They spell success. [Marcy Kenney, 202-493-3166]

SWATTING Traffic Delays with QuickZone

The first in a suite of products called Strategic Workzone Analysis Tools (SWAT), QuickZone will estimate and quantify work zone delays. The Operations and Intelligent Transportation Systems Research Team developed this tool in cooperation with Mitretek Systems because the FHWA realized officially in 1998 that traveler delay is a "soft cost" of road construction and refurbishment. QuickZone will help officials prepare travelers and commuters for the types of delays they may encounter. It's easy to use and all you need is a Windows-based PC running Excel97. You can estimate delay in all four phases of the project (policy, planning, design and operations). QuickZone is designed to let you input and check a QuickZone network in less than 1 hour. Then it should take less than 3 minutes to analyze the data and produce delay profiles over the project duration. Want to try out the beta version? Just go to www.tfsrc.gov/its/quickzon.htm and download it. The developers need your help in assessing its

ease-of-use, user interface, presentation of outputs, visual display of data, and overall functionality.

So check it out!

[Debbie Curtis, 202-493-3267]

Rx for Bridges

Question: What do bridges and patients have in common? Answer: Similar diagnostic technologies. When suspension bridges have their cables inspected for safety, the tension on each suspender rope must be adjusted to evenly distribute the loads of the bridge deck and traffic. This past summer FHWA's Advanced Research Program, the Southwest Research Institute, the Port Authority of New York and New Jersey, and Parsons Transportation Group used Magnetorestrictive Sensing (MsS) magnetic pulses, a kind of magnetic resonance imaging (MRI), to generate and detect stress waves on the George Washington Bridge, to locate defects and determine tensile structure. MsS helped to monitor the tensioning of new suspender ropes on the bridge and to inspect the main suspension cables and their anchorages.

Because conventional temperature or strain gauges are fragile, the Advanced Research Program, along with the National Science Foundation, New Mexico State University, New Mexico DOT, and Blue Road Corp used fiber-optic technology, imbedding sensors in concrete during casting. Using these gauge implants, similar to a form of orthoscopic viewing surgery, they looked at damage to high-performance concrete structures during the casting period. While the concrete girders are transported and put in place across the Rio Puerco River in New Mexico, these implants will monitor strain and temperature. Once traffic starts to flow, data from the sensors will establish load histories.

The US builds ten thousand bridges each year. These technologies will help build them faster and better and will help keep them problem free. [Roy Trent, 202-493-3068]

All about Town

Jim Cooper and **Bob Ferlis** from TFHRC are accompanying **Denny Judycki** on November 28 to Tsukuba, Japan, for the Ninth US-Japan Workshop on Advanced Technology in Highway Engineering. While there, they'll attend Japan's Smart Cruise 21 – Demo 2000 featuring advanced safety vehicles and advanced cruise-assist highway systems. Have a great trip! [Bob Kelly, 202-493-3469]

People and Places

Roll out the Welcome Mat

To **Joshua Grzegorzewski**, **Martha Kapitanov**, and **Steve Tzikas**! They'll only be around for a short time and then they're off with some new FHWA experience under their belts.

Joshua is spending 2 months in Safety R&D as part of the Professional Development Program (PDP). He's a graduate of Georgia Tech and thus far the program has given him experience as an assistant area engineer (GDOT, district 6), Recreational Trails Program liaison, Appalachian Development Highway System liaison, plus other assignments involving safety and crash testing.

Martha is only going to be around 2 weeks at TFHRC, which is just one stopping point on her way from Puerto Rico, where she got her BSCE, to New York and then Arizona and New Mexico before landing in the Washington, DC, area. She too has the Professional Development Program to thank for all her interesting assignments.

Steve is in the Executive Potential Program and is also widely traveled. He received his BSCE from Rensselaer Polytechnic in New York and his MSCE from the University of New South Wales down under. He served in the U.S. Army in Japan. Now he's an Industrial Hygiene Manager in the Environmental Occupational Safety and Health Division, Immigration and Naturalization Service. He'll help FHWA get more bucks from Congress to do good stuff. [Marcy Kenney, 202-493-3166]

Food for thought (and for the CFC)

It's that time of year again when we dream of goodies for the holidays and winter warmers to keep the chill off. So why not satisfy your appetite and give to those less fortunate at the same time?! The October bake sale was a great success with proceeds being \$251.25 exactly. Another activity was the chili cookoff on Thursday, November 16, where many entered their gourmet recipes and even more sampled some of the finest chili to be found around town, including Texas. [Judy Dakin, 202-493-3192]

RD&T's two good men go the extra miles

Our own **Bill Bolles** and **Mike Moravec** sprinted across the finish line in the Marine Corps Marathon October 22. Finishing in 3 hours and 37 minutes, Bill achieved an overall rank of 1,214. No doubt his time was so good because he had to hurry home to his new baby. Mike finished in 5 hours and 19 minutes, ranking 13,920 overall. In the last half he passed 594 people! Congratulations Bill and Mike! [John McCracken, 202-493-3422]

Moving on and up

Congratulations to **Paula Ewen** on her promotion from Director of Resource Management at Turner-Fairbank to the Office of Information and Management Services. Well done, Paula!

Another Milestone on the Quality Journey

On behalf of all of you, Tom Granda and Paula Ewen (we borrowed her back for the day) accepted one of the only four Quality Journey Commitment Awards given to FHWA organizations for 2000. The others recognized were the Infrastructure CBU, the Indiana Division Office, and the Virginia Division Office. This is a real highlight for RD&T and the Research Center and says a great deal about our journey to become more relevant, indispensable, and connected.